

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A single layer anti-reflective hard-coat which comprises between 5 to 75 weight % of inorganic nano-particles to provide the hard-coat with a nano-structured surface having randomly distributed ridges and troughs, wherein the ridges having a height in the range of 50-200nm and distances between ridges is less than about 400 nm, wherein the hard-coat increases an optical transmission of a substrate on which the hard-coat is formed in at least a range of wavelengths of the electromagnetic spectrum and exhibits a refractive index gradient normal to the substrate that decreases from that of the hard-coat to that of air over a spatial length scale, and wherein the hard-coat has a hardness above 0.7 GPa and scratch resistance above $5 \text{ mJ } \mu\text{m}^{-3}$, as measured with nano-indentation on a bulk material that is used to make the hard-coat.
2. (cancelled)
3. (currently amended) A hard-coat according to claim 1, having a hardness of comprising a material with a hardness above 0.5 GPa, preferably above 0.7 GPa and most preferably above 1.0 GPa as measured by nano-indentation.
4. (currently amended) A hard-coat according to claim 1 having comprising a material with a reduced tensile modulus above 3 GPa, preferably above 8.5 GPa or 20 GPa, most preferably above 40 GPa as measured by nano-indentation.
5. (currently amended) A hard-coat according to claim 1 having comprising a material with a scratch resistance above $5 \text{ mJ } \mu\text{m}^{-3}$, preferably above 15 or 30 $\text{mJ } \mu\text{m}^{-3}$, preferably above 60 $\text{mJ } \mu\text{m}^{-3}$ as measured by nano-indentation.
6. (currently amended) A hard-coat according to claim 1 containing an amount of inorganic nano-particles from 5 to 75 weight %, preferably from 15 to 50 weight % of inorganic nano-particles.

7-9. (cancelled)

10. (previously presented) A single layer hard-coat according to claim 1 wherein the critical wave vector of the radial fourier density transformation for an uncorrelated density distribution is below $2\pi / 600$ nm.

11. (original) A single layer hard-coat according to claim 10 wherein the critical wave vector of the radial fourier density transformation for an uncorrelated density distribution is below $2\pi / 400$ nm.

12-19. (cancelled)

20. (previously presented) Shaped articles comprising a hard-coat according to claim 1.

21. (new) A composite structure according to claim 4 wherein the hard-coat has a reduced tensile modulus above 8.5 GPa.

22. (new) A composite structure according to claim 4 wherein the hard-coat has a reduced tensile modulus above 20 GPa.

23. (new) A composite structure according to claim 4 wherein the hard-coat has a reduced tensile modulus above 40 GPa.

24. (new) A hard-coat according to claim 5, having a scratch resistance above $30\text{ mJ }\mu\text{m}^{-3}$ as measured by nano-indentation.

25. (new) A hard-coat according to claim 5, having a scratch resistance above $60\text{ mJ }\mu\text{m}^{-3}$ as measured by nano-indentation.